



## **MTI® hose - Instruction for Use in the Vacuum Infusion Process**

The MTI® hose (Membrane Tube Infusion) is a cutting edge production aide developed to enhance the productivity, reliability and quality of industrial composite manufacturing processes utilizing the resin infusion technology. It completely replaces the sometimes complex as well as time and money consuming standard vacuum port system setup. To incorporate the MTI® hose in the process it is simply placed on the flange or even directly on the laminate, one end is closed and the other end connected to the vacuum pump. Even with large wind turbine or hull molds there are no additional materials or connectors necessary.

The MTI® hose is based on a semipermeable membrane sleeve which supports air and gases to be drawn out of the system while ensuring that the infused matrix material stays inside the mold cavity.

### **This technology offers a decisive impact on:**

- 1) **Productivity** - The fast and simple vacuum system setup cuts cycle time particularly with the serial production of larger products such as wind turbine blades or hulls as well as it reduces labor and material costs.
- 1) **Quality** – The membrane supports the controllability of vacuum infusion processes. It reliably prevents that resin is drawn out of the laminate so that the calculated fiber to volume fraction can be realized exactly. The closed hydraulic system allows for adjusting the compaction of the laminate from the resin inlet side only. This affects the void content as well as the porosity of the produced laminate.
- 2) **Reliability** - The membrane system provides a self-regulating process. Even with race tracking disturbances of the flow front resin can not escape the mold cavity, hence there is no need for a complex vacuum port management. A resin catch container is also no longer necessary which enhances the process safety, reduces resin consumption as well as it saves labor for preparation of the container and disposal of wasted resin.

### **Working with the MTI® hose (See also a video “How to Use MTI®” on [gac-us.com](http://gac-us.com))**

With a 300ft roll - Open the bag in the center and grasp the end of the hose which is located in the center of the roll.

1. Cut the membrane sleeve straight, then hold it tight and seal with sealant tape. Make sure there is no embedded pleat through which resin could enter the MTI® hose.





2. To ensure a proper airflow to the vacuum pump the MTI® hose should have a connection to the laminate through any kind of porous material. The hose can be placed either on the peel ply fabric or even directly on the laminate. A wide flange and break zone to brake resin flow is not necessary.



3. To connect the MTI® hose with the vacuum pump we recommend a 3/8" OD solid hose which is plugged into the spiral tube that is inside the MTI® hose. Pull the membrane sleeve over the joint and seal with sealant tape. Be accurate with the sealing operation to prevent resin from entering the vacuum line.



4. Connect the vacuum hose to the vacuum pump. You can incorporate a resin catch container as backup system in between but you will no longer need it.
5. The permeability of the membrane was optimized to act as a reliable resin barrier. Since this affects the time to pull down vacuum through the membrane hose we recommend to use a resin inlet port for the evacuation process as well as for the vacuum drop down test before switching to the MTI® hose.